

ABSTRACT

In accordance with the present invention, an electroplating solution is provided for electroplating satin bright tin-bismuth alloy solder coatings in high speed electroplating applications. The solution comprises a sulfonic acid electrolytes, a soluble tin compound, a soluble bismuth compound, a non-ionic surfactant, a grain refiner and an antioxidant. The preferred non-ionic surfactant comprises a mixture of polyethylene glycol-block-polypropylene glycol, polyethylene glycol-ran-polypropylene glycol, and ethylenediamine tetrakis (polyethylene glycol-block-polypropylene glycol) tetrol.